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15 February 1994
EA Project No. 29600.09

Northern Division, Naval Facilities
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Mail Stop 82, Attn: Code 1821/JLC
Lester, Pennsylvania 19113-2090

Attn: Mr. James Colter

RE: Response to U.S. Environmental Protection Agency Comments on Final Work Plan for Pilot-Scale Testing of Free-Product Recovery and Aquifer Air Sparging at the Navy Fuel Farm Facility, Naval Air Station Willow Grove, Pennsylvania Contract No. N62472-92-D-1296, Contract Task Order No. 0009

Dear Mr. Colter:

This letter serves to respond to comments provided by the U.S. Environmental Protection Agency (EPA) regarding pilot testing activities at Naval Air Station Willow Grove. EA received a copy of the comments via facsimile on 12 January 1994. Specific EPA comments on the above-referenced document were prepared by EPA's Superfund Technical Assistance Program (START) and addressed to Mr. James Colter of Northern Division on 6 January 1994. EA's proposed responses to EPA/START comments are addressed in Attachment A.

General comments on the Work Plan were also prepared by Mr. Drew Lausch, Remedial Project Manager for EPA Region III. As a whole, the comments provided by Mr. Lausch are accurate and technically sound. EPA's review of the Work Plan focuses primarily on the feasibility of implementing soil vapor extraction and aquifer air sparging (SVE/AAS). This is a valid concern which has been visited in detail both in the Work Plan and during subsequent discussions between Northern Division and EA.

The Work Plan describes a phased approach whereby free-product recovery will be implemented as the first step in treatability testing. The second step (SVE/AAS), as agreed to by Northern Division and EA, will not be implemented until free-product recovery has been operational for several months and a technical evaluation has been made on test progress. Only at this time will the efficacy of SVE/AAS pilot testing be considered. Though proposed in the Work Plan as a potentially extensive test, the scope of SVE/AAS testing will not be defined for several months.

EPA suggests that SVE/AAS pilot testing be performed in a phased approach, with permeability testing performed prior to pilot testing. EA agrees with this approach and also suggests that prior to designing a system, short-duration SVE tests (24-72 hours) be conducted at existing well(s). This may be accomplished with EA's trailer-mounted SVE system and field gas chromatography laboratory van. We would be happy to discuss this technique with you in detail at a later date.

We trust this information is suitable to your needs. Please do not hesitate to call me should you have any concerns or questions.

Respectfully,

Michael S. Battle
CTO Manager

MSB/mvm
Enclosure

cc: P. Briegel (Northern Division-w/enc.)
C. Houlik (EA-w/enc.)
G. McCleary (EA-w/enc.)

Attachment A

ATTACHMENT A

Response to EPA/START Comments on Final Work Plan for Pilot-Scale Testing of Free-Product Recovery and Aquifer Air Sparging at the Navy Fuel Farm Facility, Naval Air Station Willow Grove, Horsham Township, Pennsylvania

EPA/START COMMENT SECTION 1.0 INTRODUCTION AND SUMMARY

Section 1.2, Paragraphs 1-2

EA agrees with EPA/START's suggestion that SVE/AAS pilot testing should be performed in phases. EPA/START has identified two phases, namely:

Phase I - Air Permeability Testing
Phase II - Pilot Study Testing.

EA further recommends that SVE/AAS should be further divided as follows:

Phase II - Short-Term Pilot Testing
Phase III - Long-Term Pilot Testing.

EPA/START has also commented that the magnitude of the study should be reduced. The phased approach identified in Phases II and III will permit EA and Northern Division to assess appropriate pilot system size. Phase II above is designed to permit rapid assessment of the overall efficacy of SVE/AAS via short-term (e.g., 24-72 hours onsite) testing. Phase III would be contingent upon results obtained from Phase I and II. At Northern Division's request, the Work Plan may be adjusted to reflect this approach.

Section 1.2, Paragraph 3

EPA/START suggests that the Work Plan follow EPA guidance documents on conducting treatability studies, and that the Work Plan lacks quality assurance project plans (QAPPs) and budget sections for the Free-Product Recovery and AAS sections; and equipment and materials, sampling and analysis plan, and residuals management plan in the SVE/AAS section.

EA did not feel that treatability study work plan guidance was applicable to this pilot study. The intent of the Work Plan under this project is to define critical project objectives and a means for accomplishing those objectives. The format has been designed to incorporate the means by which samples will be taken and data interpreted. Data quality will be reviewed for accuracy and usability prior to data interpretation. However, the original project objectives did not call for the preparation of a QAPP under this Contract Task Order. Budget sections have purposely been excluded from the Work Plan because this information is non-critical to the technical objectives of this study.

With respect to the equipment and materials, sampling and analysis, and residuals management sections for SVE/AAS, these sections were purposely prepared in generalized form based on the lack of design criteria data available. These issues are recommended to be addressed after proposed Phases I and II have been completed.

Section 1.2, Paragraph 4

EPA/START recommends Northern Division consider techniques to increase site permeability, such as pneumatic fracturing extraction (PFE) or hydraulic fracturing technology (HFT). It is EA's position that these technologies should be evaluated only if it has been verified that site soil is not amenable to SVE/AAS.

EPA SECTION 2.0 ANALYSIS OF TECHNICAL ISSUES AND TEST DESIGN

Section 2.1.2, Paragraph 1

Phasing of SVE/AAS pilot testing is again recommended. In this paragraph, EPA/START recommends Phase I include permeability testing and radial influence testing. EA agrees with this approach, with these steps proposed as Phases I and II previously in this response.

The sizing of the pilot system is again questioned as being too large. The basis for pilot study design size was determined by Northern Division and subsequently defined in the Work Plan. At Northern Division's request, the extent of the study area may be scaled back. A reduction in test area size will not compromise the quality and usability of the data collected.

Section 2.2.2, Paragraph 1

EPA/START notes that the SVE/AAS section of the Work Plan does not include a sampling and analysis plan or a QAPP. Factors behind the absence of these portions of the Work Plan have been previously discussed.

Section 2.3, Paragraph 1

The units for Q (flow rate) are reported by EA in cubic feet per minute. EPA/START correctly states that Q should read "standard cubic feet per minute." EA will incorporate this change in future project deliverables.

In Section 5.3.3 of the Work Plan, EA prepared a sentence reading "The need for passive or active air injection wells must be considered to promote vertical air flow in the event a high degree of short circuiting is indicated." EPA correctly states that the words "promote vertical air flow" should be changed to "modify air flow patterns." This change will be incorporated in future project deliverables.

EPA/START COMMENT SECTION 3.0 ADDITIONAL TECHNOLOGY RECOMMENDATIONS

EPA/START recommends that should SVE/AAS technology show unacceptable recovery rates because of low permeabilities in the vadose zone and underlying saturated zone soil and weathered bedrock, PFE, and/or HFT should be considered. EA agrees with this assessment and recommends Northern Division evaluate this consideration should Phases I and II indicate insufficient permeabilities or SVE/AAS removal rates or radial influences.